

Comments of Alcan Aluminum Corporation, Ingot Sales
On
Department of Energy's (DOE)
Energy Star Program for Windows

March 28, 2003

1. INTRODUCTION

Alcan Aluminum Corporation, Ingot Sales is a corporation whose business includes production and supply of aluminum extrusion billet to aluminum extruders involved in the aluminum fenestration market. Alcan Aluminum Corporation, Ingot Sales (Alcan) has reviewed the February 11, 2003 proposed revisions to the Energy Star Windows program and we appreciate the opportunity to submit comments on this document.

Alcan has serious concerns and problems with DOE's approach to the Windows portion of the Energy Star Program. The proposal does not address several significant issues, such as air infiltration, durability, storm resistance and environmental lifecycle, that affects the long-term energy and consumer cost savings intended for the Energy Star program.

If DOE finalizes either of the proposals as they are now structured, Alcan agrees with the Aluminum Extruders Council analysis that 1600 products on the market will lose their Energy Star classification and will disappear. This would result in the elimination of about 50 aluminum window manufacturers. We believe that the DOE should withdraw the proposals and reassess them taking into consideration additional factors. Otherwise the DOE will be arbitrarily harming aluminum extruders and aluminum window manufacturers and limiting consumers' choice without appropriate benefit. We are concerned those consumers will not see the significant long-term benefits that they believe they will obtain from an Energy Star purchase and that this could undermine the buyer confidence in the reliability of the Energy Star program.

2. LONG-TERM DURABILITY, AIR INFILTRATION, STORM PROTECTION AND ENVIRONMENTAL ISSUES THAT SHOULD BE ADDRESSED BY ENERGY STAR

DOE's analysis document supporting the February 11, 2003 proposal does not adequately address several features of windows that affect the energy/cost savings for consumers and other environmental life cycle impacts. These energy/cost savings and environmental impacts would be lost if the proposals are implemented.

Long-Term Durability

The DOE Energy Star proposal must take into consideration the long-term durability of the window product that should be expected over the normal life cycle of a window. A frame that deforms over time will result in air leakage. The resulting energy losses from air leakage will far exceed the initial energy savings the window exhibited when first purchased. It is a major fault of the DOE's 40-year life analysis that there is no requirement that a window product can demonstrate that the energy savings initially obtained can be achieved throughout the 40-year life period used.

As reported by the Aluminum Materials Council of the American Architectural Manufacturers Association, aluminum used in fenestration products has durability advantages over other materials that would pass under the radar of the proposed Energy Star standards. Aluminum shows high values

The DOE should take into consideration the properties of a material and how it will affect air infiltration of the window made with the material over time. These properties include

- tensile strength (psi) for robustness
- rigidity/stiffness
- resistance to deformation or bending

- expansion and contraction.
- weathering characteristics of the material
- response to higher and lower temperatures affecting brittleness and softness.

Aluminum shows its strengths when evaluated using these criteria. Considering that there are significant questions about the long-term performance among materials, the difference cannot be excluded in an analysis.

Storm Resistance

The DOE proposal should be more concerned with the storm resistant characteristics of a window. The analysis paper attempts to explain away that local building codes will dominate sales decisions. We agree with the Aluminum Extruders Council's contention that consumers may purchase windows with an Energy Star label which have inferior storm resistance in the mistaken belief that the Energy Star label would not be allowed on a product that fails to provide the storm resistance required by local building codes. This consumer confusion is more likely in the replacement market where local building codes may not be rigorously enforced.

The requirement for storm resistance exists in states such as North Carolina, South Carolina, Georgia, Mississippi, Louisiana and Texas. All these areas are outside the "Southern Zone" defined under either of the DOE proposals.

Given the property and life endangering possibilities that could occur Alcan believes that the DOE must provide a mechanism to allow aluminum frame windows to obtain Energy Star status in these areas. We believe that the suggested approach outlined in the Aluminum Extruders Council's comments submitted to the DOE on March 27th provide viable options that allow this to occur.

Life Cycle/Recycling Issues

It is unfortunate that the DOE in its analysis paper did not address life cycle and recycling/disposal issues of the various materials involved in window manufacture. The only discussion of environmental issues is based on theoretical reductions in emissions from power plants due to energy savings.

The use of aluminum for window framing is several advantages over other framing materials. These advantages include the ability of recycle aluminum into similar and higher value products. In other words, aluminum can be recycled repeatedly without losing any of its properties. Aluminum by its nature has “embedded energy”, this enables recycling to require only 5% of the energy to reprocess the aluminum as compared to that required to smelt primary aluminum. This cost saving encourages the economic recycling of aluminum. Unlike some other framing materials, aluminum is fully recyclable it is not regarded as a contaminant by recyclers. When there is not a feasible large scale post consumer recycling program available for a material, its disposal in landfills means that the energy invested in its manufacture is thrown out (not to mention the possible environmental hazards resulting from the deterioration of the waste material).

Unfortunately, we are not aware of any analysis of the average content of recycled aluminum used in window framing material of the average aluminum window frame manufactured today is recycled aluminum. The Aluminum Association is considering conducting a survey of aluminum window manufacturers to determine on average what percentage of recycled aluminum is used in an aluminum window frame. We estimate that of all the windows being made currently a minimum recycled aluminum content is 15 to 20%.

Also aluminum is a stable product that has a high melting point 1140 – 1210 Degree Fahrenheit.

In a building fire, it does not give off hazardous fumes nor are toxic residues produced.

Alcan respectfully requests that DOE fully consider life-cycle energy consumption and environmental factors before any final decision regarding the Energy Star program is made.

Consumers should not be put into a situation where the DOE has not recognized the negative impact for a material contained in a window having the Energy Star label.

The DOE should consider the approach taken in Great Britain and Germany to energy conservation for windows that recognizes the durability over time and life cycle environmental benefits of aluminum. As shown in Document L from the United Kingdom (see attachment), different standards are established which are based on the long-term durability benefits of aluminum. The true assessment of the energy conservation for windows must be based on the durability over time of the windows and the amount of energy lost through air infiltration, as well as life cycle.

Aluminum framing material has shown to have superior performance over normal product usage over competitive materials. Currently, the NFRC (National Fenestration Rating Council) is conducting long-term durability testing of various window framing materials as part of the Long-Term Energy Performance Subcommittee. We expect that this testing will confirm prior testing done by the AEC regarding durability over time. DOE must take this fundamental factor into account in any further Energy Star program for windows. The omission of long-term durability characteristics from the Energy Star rating proposal can be corrected. Otherwise, besides impacting the credibility of Energy Star, the proposals will have a negative impact on aluminum window manufacturers and aluminum extruders. As noted above, the Aluminum Extruders Council estimates that the DOE's proposals would make 1600 existing products not eligible and force 50 window companies out of the business and making these products.

Alcan fully supports the alternative approaches suggested by the Aluminum Extruders Council in the comments letter to the DOE dated March 27, 2003. Their proposals have been presented with quantified justification that show that they will achieve comparable or superior energy cost savings compared to the Energy Star proposals, and also keep appropriate competitive balance among window materials. By adopting a more flexible approach to the Energy Star window products rating program that would be based on the performance of a given product, the DOE would be consistent with performance-based approach for 90% of the other Energy Star standards. Under this approach, a window manufacturer would be able to present information to DOE using widely available and accepted analytical tools, which would show that the product achieves energy/cost savings that are consistent to the levels selected by DOE for a particular zone.

For the reasons stated above, the DOE should modify its February 11, 2003 proposal in accordance with one of the four options presented in Section III of the Aluminum Extruders Council letter to the DOE on March 27, 2003.

Attachments: Building Regulations Part L
